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# **Earth Systems Consultants**

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## **Southern California**

**REPORT OF ADDITIONAL  
SUBSURFACE SOIL INVESTIGATION  
AT  
PENROSE LANDFILL,  
SUN VALLEY, CALIFORNIA**

**REPORT OF ADDITIONAL  
SUBSURFACE SOIL INVESTIGATION  
AT  
PENROSE LANDFILL,  
SUN VALLEY, CALIFORNIA**

Prepared for  
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SL-19926-V1  
June 1994

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LOS ANGELES REGION

June 13, 1994

Project No: SL-19926-V1

Mr. Andrew Washington  
Environmental Compliance Manager  
Pacific Energy  
6055 East Washington Boulevard  
Commerce, California 90040

SUBJECT: ADDITIONAL SUBSURFACE SOIL INVESTIGATION AT  
PENROSE LANDFILL, SUN VALLEY, CALIFORNIA.

## 1.0 INTRODUCTION

This report presents the results of the additional subsurface soil investigation conducted on March 7, 1994 at the site of the former oil/water clarifier at the Penrose Landfill located in Sun Valley, California. The purpose of this investigation was to further delineate previously identified subsurface contamination beneath the former clarifier, as mandated by the Regional Water Quality Control Board, Los Angeles Region (LARWQCB).

This report presents the results of the assessment activities conducted to date. Contained in this report are 1) a summary of previous assessment activities; 2) discussions of local geologic, soil, and groundwater conditions; 3) results of the latest laboratory analyses of soil samples; 4) interpretation of analytical and field data; and 5) conclusions. Site assessment methods used were in accordance with generally accepted professional environmental and geotechnical engineering procedures.

## 2.0 BACKGROUND

### 2.1 Project Location

The Penrose Landfill is located at 8301 Tujunga Avenue in an industrial area of Sun Valley, California (Figure 1). The site of the former clarifier is located in the northeastern part of the landfill, approximately 50 feet west of Tujunga Avenue and 500 feet south of the intersection between Tujunga Avenue and Penrose Street. The former clarifier site is adjacent to the southeast corner of an industrial building, east of, and adjacent to, a bank of power-generating equipment (Figure 2). The former clarifier location has an elevation of approximately 830 feet above mean sea level. Surface drainage is to the south.

## 2.2 Project History

Pacific Energy operates a gas-fired power plant at the subject site using methane gas collected from the Penrose Landfill. In December 1985 a concrete three-chambered underground clarifier was installed at the plant to receive effluent from treated landfill-condensate and the industrial building floor-drains. After passing through the clarifier, effluent was discharged to the municipal sewer system. In June 1990 an above-ground clarifier was installed to handle the effluent. The underground clarifier was modified to receive only the effluent from the building floor-drains. Effluent was then pumped to the above-ground clarifier. The height of the underground clarifier was approximately 12 feet, and its rectangular base measured approximately 10 feet by 6 feet. The base of the clarifier was 15 feet below the ground surface (BGS).

In May 1993 Pacific Energy (Client) removed the clarifier and contracted with Earth Systems Consultants (ESC) to assess potential contamination at the clarifier site. Initial sampling operations were conducted on May 21 and 28, 1993. Samples were collected from the base and sidewalls of the clarifier excavation. The results of initial exploration and analytical testing indicated that Total Petroleum Hydrocarbons as gasoline and diesel (TPHg and TPHd, respectively), and benzene were not present in any sample at detectable concentrations. However, hydrocarbons within the weight ranges of motor oil and kerosene were detected in all the soil samples initially collected. Two (2) samples collected from the center of the excavation also contained toluene, ethylbenzene, xylenes, chlorobenzene, dichlorobenzenes, and tetrachloroethane.

On March 7, 1994, ESC drilled a single angled boring adjacent to the site of the former clarifier. The borehole was advanced to a vertical depth of 50 feet, and positioned so that samples taken between the depths of 25 and 50 feet were collected from beneath the existing open excavation which marks the site of the former clarifier. A description of field methods and analytical test results from the March 7 exploration are given below. Upon completion of drilling and sampling, the angled borehole was converted to a soil vapor monitoring and sampling well, as described below.

## 2.3 Geologic and Hydrogeologic Conditions

The subject site is located within the San Fernando Valley, in the central Transverse Ranges of California. The valley is bounded on the north and east by the Santa Susana and San Gabriel Mountains, on the west by the Simi Hills, and on the south by the Santa Monica Mountains. The valley is filled with up to 12,000 feet of Cenozoic and Tertiary age marine sediments, and (locally) volcanic rocks of Miocene age. These rocks overlie a (presumably) crystalline basement. During Quaternary time, fluvial sediments, derived primarily from the Tujunga Wash and the Los Angeles River to the north, were deposited on the marine sediments, resulting in a broad alluvial plain. Quaternary age sediments at the subject site are primarily coarse-grained river deposits consisting of sand and pebble-cobble gravel, with minor interbedded sandy silt and clay.

In a 1969 report on the agricultural properties of the soils in the San Fernando Valley, the United States Department of Agriculture classified the topsoil at the subject site as belonging to the Tujunga-Soboba association. Soils of this association are typically developed on alluvium with less than 5 percent slopes. Tujunga soils are generally sandy, very well drained, and highly permeable. Soboba soils are typically very fine-grained to gravelly sands, and loamy sands. The gravel and cobble content of Soboba soils can exceed 35%.

The subject site lies within the San Fernando Groundwater Basin. Groundwater is typically unconfined within permeable alluvial sediments. According to Rodney Brown of the Los Angeles County Flood Control Department (personal communication, 4-4-94), the elevation of groundwater in the main water table aquifer is approximately 600 feet above mean sea level, as measured in Water Well #49-18-A on November 11, 1993. The well head elevation of this well, which is within one-half mile of the subject site, suggests a depth to groundwater of approximately 200-230 feet BGS at the site of the former clarifier. The Los Angeles County Department of Public Works Hydrologic Report, dated 1989-1990, shows that the regional ground water flow in the vicinity of the site is to the south.

### 3.0 FIELD METHODS

Field activities performed on March 7, 1994, included drilling and logging a single angled borehole adjacent to the site of the former clarifier, collecting relatively undisturbed soil samples from beneath the site of the former clarifier for analytical testing, and conversion of the angled borehole to a soil vapor monitoring and sampling well. Soil samples were collected, sealed, stored, and transported to a State-certified analytical laboratory for chemical analysis following typical Chain-of-Custody protocols.

#### 3.1 Drilling Methods

On March 7, 1994, a single angled boring was drilled by Valley Well Drilling adjacent to the former clarifier site. The borehole was advanced to a vertical depth of 50 feet, and positioned in such a way that samples collected between 25 and 50 feet vertical depth were taken from directly beneath the existing clarifier excavation (Figures 2 and 3). Auger cuttings returned during drilling were contained in 55-gallon U. S. Department of Transportation (D.O.T) -approved steel drums, and stored on-site.

The alluvial stratigraphy and other pertinent data were recorded on a field log by a California State Registered Geologist in accordance with ASTM Method D2488-84 for visual description and identification of soils in conformance with the Unified Soils Classification System. The boring log is included as Appendix A.

### 3.2 Soil Sampling

Soil samples were collected using a Modified California Split-spoon Sampler and 140 lb. drive hammer. The sampler was equipped with three (3), 2.0-inch diameter, 6.0-inch long brass sleeves for soil retention. The middle sample sleeve from each sampling interval was sealed with Teflon film, capped, taped, labeled, and chilled pending transport to a State-certified laboratory for analysis. Chain-of-Custody procedures were followed for each sample collected to ensure sample integrity, and to document sample possession from the time of collection to arrival at the analytical laboratory. Sampling equipment was washed with a solution containing a non-phosphate detergent, rinsed in tap water, and then rinsed in de-ionized water between sample intervals to reduce the possibility of cross-contamination.

Samples were collected at depths of 25, 30, 40, 45, and 50 feet BGS. An attempt was made to collect a sample at 35 feet BGS, but this sample could not be recovered.

### 3.3 Analytical Testing

A total of five (5) soil samples collected during the March 7 exploration were submitted to National Environmental Testing, Inc. (NET), a California State-certified hazardous materials laboratory, to be analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg) by EPA Method 8015 Modified, for Total Petroleum Hydrocarbons as diesel by Method DOHS/LUFT, for the aromatic volatile compounds benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020, and for halogenated volatile organics by EPA Method 8010. Complete results of the chemical analyses, and chain-of-custody documents, are presented in Appendix B.

### 3.4 Soil Vapor Monitoring Well Installation

Upon completion of drilling and sampling, the angled borehole was converted to a soil vapor monitoring and sampling well. The vapor monitoring well extends to a vertical depth of 45 feet BGS. The monitoring well is constructed of 2.0-inch diameter, flush threaded Schedule 40 PVC casing. A five-foot length of 0.02-inch factory-slotted well screen, capped on the bottom, was placed at a vertical depth of 40 to 45 feet BGS. Blank schedule 40 PVC casing completes the well to the ground surface. An annular filter pack of Number 2/12 sand extends from the bottom of the well to 2 feet above the slotted interval. A 3-foot thick bentonite clay seal was placed above the filter pack, and the remaining annular space was filled with bentonite grout. A lockable, traffic-rated well cover was installed flush with the ground surface and cemented into place.



## 4.0 RESULTS OF SOIL INVESTIGATION

### 4.1 Subsurface Conditions

Soils encountered during the subsurface study were predominantly silty, fine- to coarse-grained sand; medium- to very coarse-grained sand; gravelly sand; and pebble-cobble gravel. Groundwater was **not** encountered during drilling.

During drilling a number of artifacts (glass, masonry, plastic, wood, etc.) were returned in the auger cuttings. All samples collected between 25 and 50 feet vertical depth were native material. This indicates that the upper part of the borehole penetrated the adjacent landfill, which extends to a depth of approximately 20 feet BGS in the vicinity of the borehole (Figures 2 and 3, and Appendix A). Because landfill material were not observed during excavation of the clarifier site, the edge of the landfill must lie between the clarifier excavation and the angled boring location. This interpretation is supported by the observation of a ground fissure adjacent to the clarifier site (Figure 2). This fissure reportedly formed in response to the January 17, 1994, Northridge Earthquake, and is probably a tension crack caused by settlement of the landfill.

### 4.2 Results of Analytical Testing

The analytical test results are summarized in Table 1, which also includes analytical results from the previous investigation.

The March 7, 1994, angled boring investigation detected 6.4 and 6.2 mg/kg of TPH-kerosene at vertical depths of 40 and 45 feet BGS, respectively. Chlorobenzene was detected at vertical depths of 30, 40, and 45 feet BGS at concentrations of 13,000, 11,000, and 11,000 µg/kg, respectively. Neither TPHd nor BTEX compounds were detected in any of the samples collected on March 7.

TPHg and TPHd were not detected in any of the soil samples tested. However, the results of the previous investigations conducted on May 21 and 28, 1993, yielded concentrations of 11 mg/Kg and 15 mg/Kg of heavy hydrocarbons in samples S-1 @ 7' and S-2 @ 7', respectively. According to the NET laboratory report, the detected compounds fall within the motor oil range for hydrocarbons (i.e., their chemical structures have more than 18 Carbon atoms linked together). Hydrocarbons heavier than gasoline were detected within the center of the former clarifier location at concentrations which increase rapidly with depth, from 1,300 mg/Kg in sample S-4 @ 20' to 2,700 mg/Kg in sample S-5A @ 25'. The weight range of these hydrocarbons was indeterminate by test method 8015 Modified. Additionally, the reported concentrations of hydrocarbons within the kerosene range (i.e., those with chains of 12 to 16 Carbon atoms) for samples S-4 @ 20' and S-5A @ 25' were 4,700 mg/Kg and 4,300 mg/Kg, respectively.

Benzene was not detected in any sample. Other volatile aromatics were only detected in the samples collected from the center of the excavation during the previous exploration conducted on May 21 and 28, 1993. In these samples, the reported concentration of toluene showed a moderate decrease with depth from 520  $\mu\text{g/Kg}$  in sample S-4 @ 20', to 320  $\mu\text{g/Kg}$  in sample S-5A @ 25'. In contrast, the concentration of ethylbenzene increased from 4,600 to 30,000  $\mu\text{g/Kg}$ , for samples S-4 @ 20' and S-5A @ 25', respectively, and the concentrations of various xylene compounds increased from 16,000 to 89,000  $\mu\text{g/Kg}$ , for samples S-4 @ 20' and S-5A @ 25', respectively.

Various halogenated volatile organic compounds were detected in samples S-4 @ 20' and S-5A @ 25', in concentrations of up to 27,000  $\mu\text{g/Kg}$  (Table 1).

Arsenic concentrations detected in soil samples collected on May 21 and 28, 1993 ranged from a low of 0.2 mg/kg to a high of 0.89 mg/kg. The Total Threshold Limit Concentration (TTLIC) and Soluble Threshold Limit Concentration (STLC) of arsenic, according to the State of California Title 22 regulations for hazardous waste, are 500 ppm and 50 ppm, respectively. Because the arsenic levels previously detected in the soil samples from the subject site were 56 to 2,500 times below State standards for hazardous waste, no additional arsenic tests were conducted on the soil samples collected on March 7, 1994.

#### 4.3 Conclusions

Five (5) soil samples were collected on March 7, 1994, from an angled borehole positioned to pass under the existing open excavation at the former clarifier site. These samples are in addition to the four (4) soil samples previously collected on May 21 and 28, 1993. Thus, a total of nine (9) soil samples have been collected and subjected to analytical testing at the site of the former underground clarifier at the Penrose Landfill.

Native materials encountered consist principally of medium- to very coarse-grained sand, gravelly sand, and pebble-cobble gravel. Landfill material was encountered in the upper 20 feet of the angled borehole drilled on March 7, 1994. The contact between landfill and native materials lies between the location of the angled borehole and the site of the former clarifier. Groundwater was **not** encountered during any phase of the investigation.

Laboratory testing detected hydrocarbons within motor oil and kerosene weight ranges in several samples. The two (2) samples from the center of the excavation collected in May 1993 contained toluene, ethylbenzene, xylenes, chlorobenzene, dichlorobenzenes and tetrachloroethane. The samples collected on March 7, 1994, from the angled borehole at 30, 40, and 45 feet vertical depth all contained chlorobenzene, but no other halogenated hydrocarbons.

The observed pattern of contaminant distribution beneath the site of the former clarifier is revealing. Various contaminants were detected in the sample previously

collected in May 1993 from directly beneath the former clarifier at a depth of 25 feet BGS, while the sample collected on March 7, 1994, from the angled borehole at a vertical depth of 25 feet BGS tested free of contamination. Although collected from the same depth, the angled borehole sample (B-1 @ 25') was obtained from the south edge of the former clarifier site. This suggests that the contaminants present are moving vertically downward, with no lateral transport of fluids. This is consistent with the very course and highly permeable nature of the alluvial sediments beneath the clarifier site, and the absence of any near-surface groundwater. The analytical results also suggest that the contamination is concentrated in a zone between approximately 15 feet BGS (the depth corresponding to the base of the former clarifier) and 35 feet BGS. The distribution of contaminants determined from the angled borehole drilled on March 7, 1994, supports this conclusion.

Owing to the very course and highly permeable nature of the alluvial sediments beneath the clarifier site, and the absence of any near-surface groundwater, any lateral migration of contaminants would appear to be limited to gas-phase transport.

Because the area south of, and adjacent to, the former clarifier site is landfill, it is the opinion of ESC that soil vapor samples collected in this area may be of limited value in assessing possible subsurface contamination caused by the former clarifier. The high permeability of the alluvium suggests that any gas-phase contaminants present at the former clarifier site which may have originated from the clarifier will have been either diluted or displaced by gases venting from the landfill. In any case, the close proximity of the landfill to the clarifier site means it may not be possible to definitively establish whether the clarifier or the landfill is the source of any gas-phase contamination which may be detected.

## 5.0 REPORT CLOSURE

This report has been prepared for the exclusive use of Pacific Energy as it pertains to the property described as the former below-ground clarifier site at the Penrose Landfill, 8301 Tujunga Avenue, in Sun Valley, California.

The findings and conclusions rendered in this report are opinions based on laboratory testing of soil samples collected and field observations obtained during the subsurface investigations performed to date. This report does not reflect subsurface variations which may exist between sampling points. These variations cannot be anticipated, nor could they be entirely accounted for, in spite of exhaustive additional testing.

This report should not be regarded as a guarantee that no further contamination, beyond that which may have been detected by specific laboratory analysis conducted within the scope of this investigation, is present on the said property. Undocumented, unauthorized releases of hazardous materials, the remains of which are not readily identifiable by visual inspection and are of different chemical constituents, are difficult and often impossible to detect within the scope of a chemical-specific investigation.

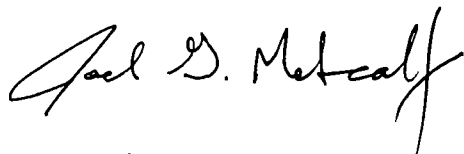
All work has been performed in accordance with generally accepted practices in geotechnical/environmental engineering, engineering geology, and hydrogeology. No other warranty, either express or implied, is made.

Thank you for this opportunity to have been of service. If you have any questions regarding this report or the information contained herein, please contact this office at your convenience.

Sincerely,

EARTH SYSTEMS CONSULTANTS, INC.

Reviewed and Approved,

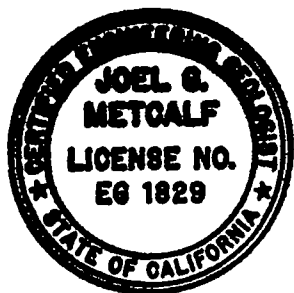


Joel G. Metcalf  
Project Geologist



C. Richard Kelly  
Senior Engineer

Distribution: 4-Pacific Energy  
1-JGM



## TABLE AND FIGURES

**TABLE 1**

**SUMMARY OF ANALYTICAL RESULTS  
FORMER CLARIFIER SITE -- PENROSE LANDFILL**

Analyte	Sample I.D. and Date Collected										Detection		
	May-93	May-93	May-93	May-93	Mar-94	Mar-94	Mar-94	Mar-94	Mar-94		PQL	Units	Method
	S-1@7'	S-2@7'	S-4@20'	S-5A@25'	B-1 @ 25'	B-1 @ 30'	B-1 @ 40'	B-1 @ 45'	B-1 @ 50'		PQL	Units	Method
TPH-kerosene	ND	ND	4700	4300	ND	ND	6.4	6.2	ND		1	mg/Kg	8015m
TPH-diesel	ND (*1)	ND (*2)	ND	ND	ND	ND	ND	ND	ND		1	mg/Kg	8015m
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND		5	ug/Kg	8020
Toluene	ND	ND	520	320	ND	ND	ND	ND	ND		5	ug/Kg	8020
Ethylbenzene	ND	ND	4600	30000	ND	ND	ND	ND	ND		5	ug/Kg	8020
Xylenes	ND	ND	16000	89000	ND	ND	ND	ND	ND		10.000	ug/Kg	8020
Arsenic	0.63	0.89	0.2	0.7	NA	NA	NA	NA	NA		0.150	mg/Kg	7061
Chlorobenzene	ND	ND	52	610	ND	13000	11000	11000	ND		5	ug/Kg	8020
1,2-Dichlorobenzene	ND	ND	1300	2700	ND	ND	ND	ND	ND		5	ug/Kg	8020
1,3-Dichlorobenzene	ND	ND	150	260	ND	ND	ND	ND	ND		5	ug/Kg	8020
1,4-Dichlorobenzene	ND	ND	10000	27000	ND	ND	ND	ND	ND		5	ug/Kg	8020
Tetrachloroethene	ND	ND	360	3200	ND	ND	ND	ND	ND		5	ug/Kg	8010

TPH: Total Petroleum Hydrocarbons

PQL: Practical Quantitation Limit

NA: Not Analyzed

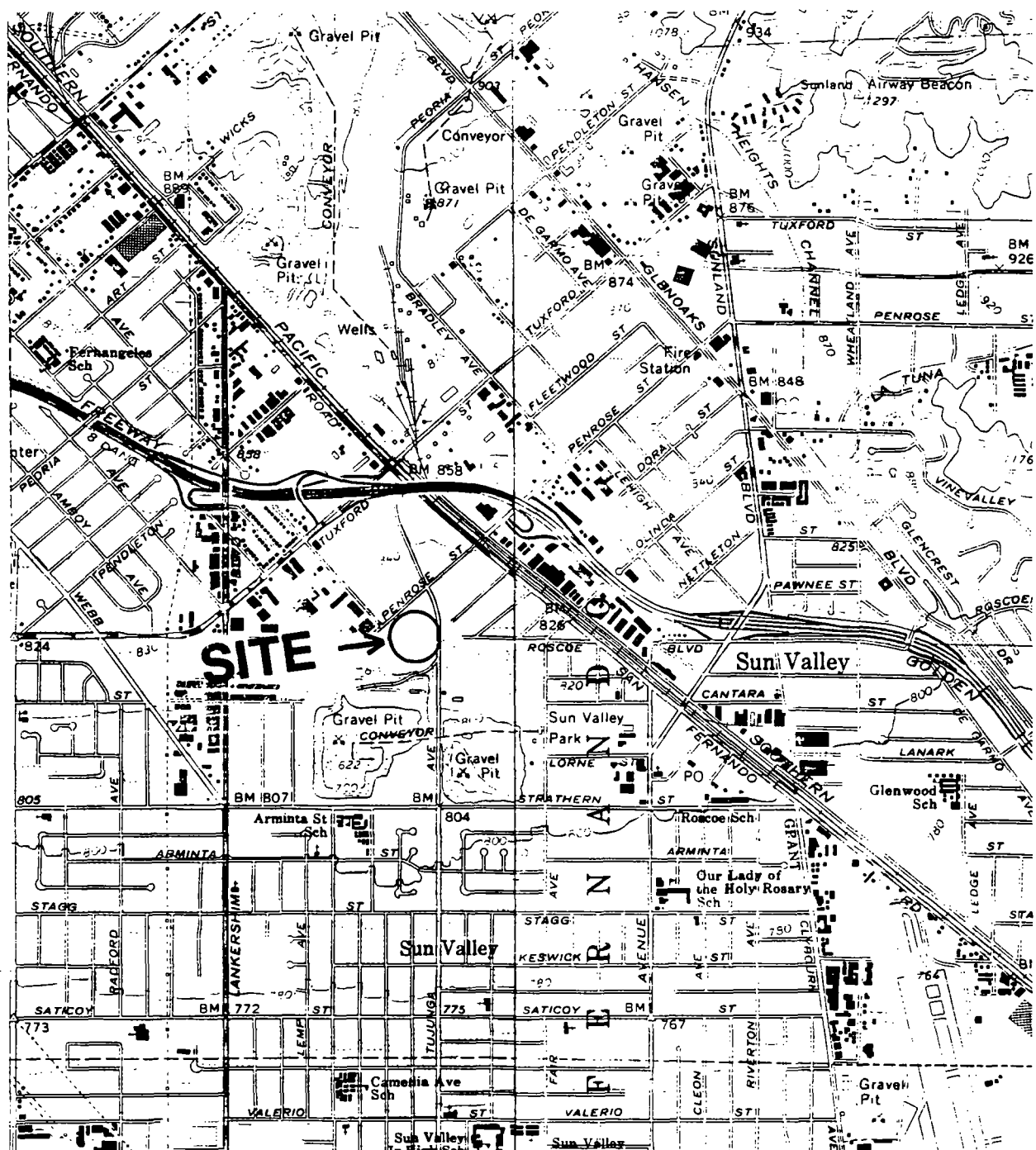
ND: Not Detected

ND(\*1): Motor oil range hydrocarbons detected at 11 mg/Kg

ND(\*2): Motor oil range hydrocarbons detected at 15 mg/Kg

ND(\*3): Hydrocarbons heavier than gasoline detected at 1300 mg/Kg

ND(\*4): Hydrocarbons heavier than gasoline detected at 2700 mg/Kg



\* Taken from USGS 7.5' Burbank and Van Nuys Quadrangle Maps.



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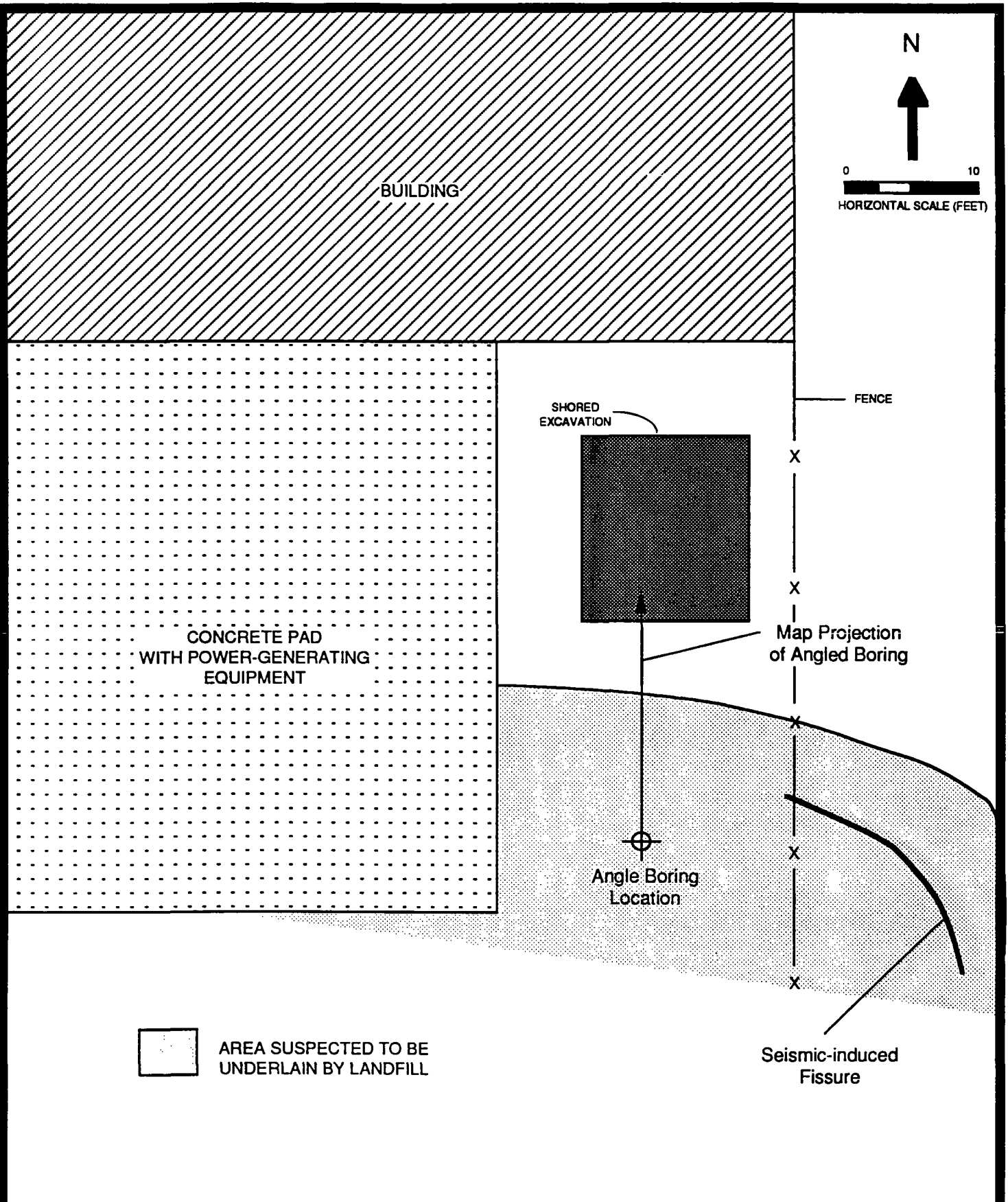
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## FIGURE 1\* PENROSE LANDFILL VICINITY MAP

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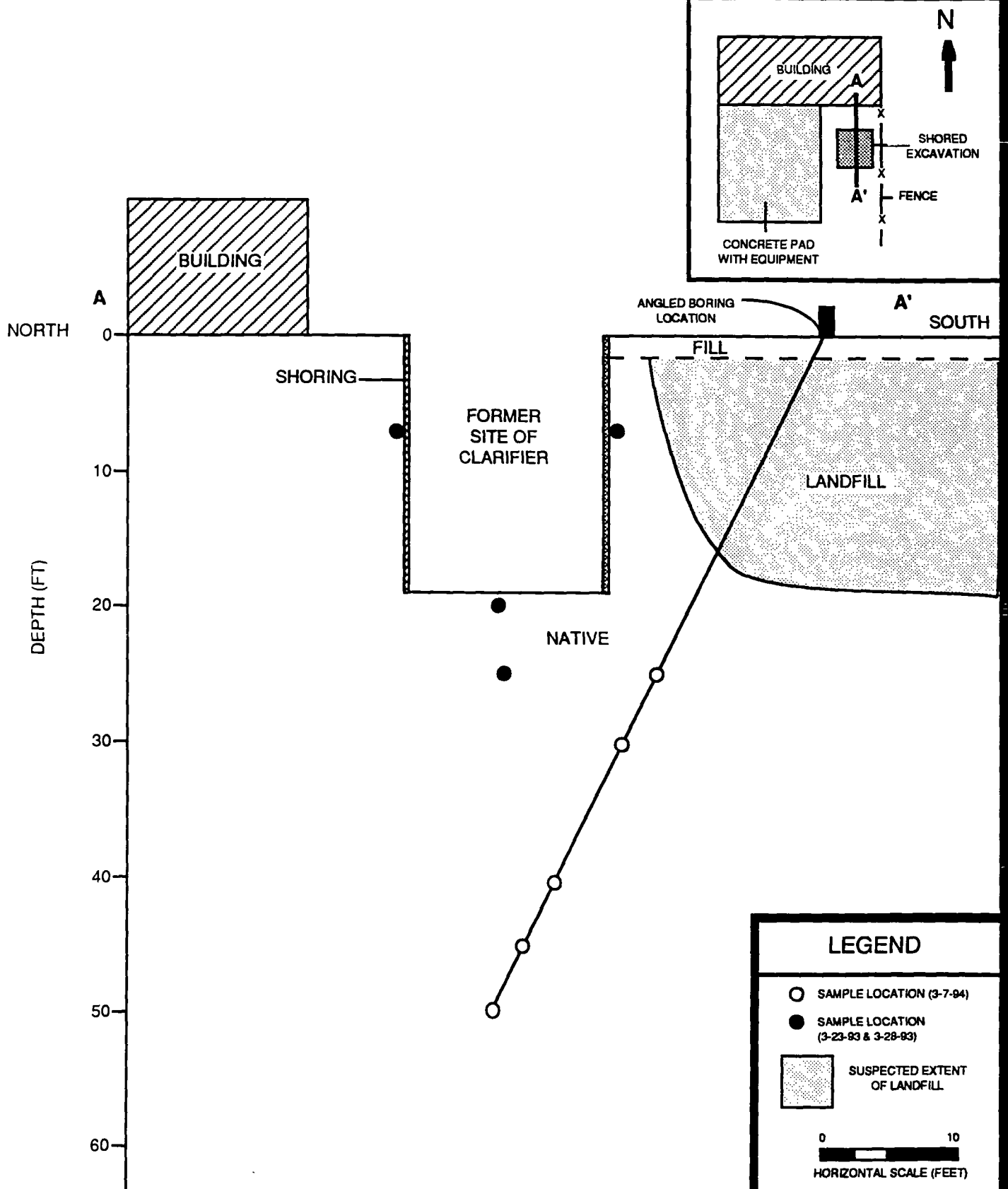
FIGURE 2

**SITE MAP PENROSE LANDFILL**

APRIL 1994

JOB NO: SL-19926-V1





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## FIGURE 3 PENROSE LANDFILL INTERPRETIVE GEOLOGIC CROSS-SECTION

APRIL 1994

JOB NO: SL-19926-V1

**APPENDIX A**  
**BORING LOG**



**BORING NO:** 1  
**PROJECT NAME:** Former Clarifier Site -- Penrose Landfill  
**PROJECT NUMBER:** SL-19926-V1  
**BORING LOCATION:** Per Plan

**DRILLING DATE:** 3-7-94  
**DRILLING METHOD:** 10 " Flight Auger  
**DRILLER:** Valley Well Drilling  
**LOGGED BY:** J. G. Metcalf

VERTICAL DEPTH (feet)	SYMBOL	SAMPLE TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	DESCRIPTION OF UNITS	USCS CLASS	REMARKS
0				Moderate brown slightly clayey fine- to medium-grained sandy silt.	ML	Landfill to Approximately 20 feet.
5				Grayish brown slightly silty fine- to very course sand, with common gravel.	SM	
10						Lumber, plastic, and wire fragments returned in cuttings.
15						
20						Alluvium.
25			20/25/30	Pale yellowish brown fine- to very course-grained sand, with minor gravel.	SW	
30			23/40/45	Pale yellowish brown to light olive gray medium- to very course-grained sand, with common gravel.	SW	
35			NO RETURN		SW	
40			20/50 for 5"	Olive gray medium- to very course-grained sand, with common gravel and pebbles.	SW	

**TOTAL DEPTH : 50 FEET.**

**NO GROUNDWATER ENCOUNTERED.**

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradual.



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**BORING NO:** 1  
**PROJECT NAME:** Former Clarifier Site -- Penrose Landfill  
**PROJECT NUMBER:** SL-19926-V1  
**BORING LOCATION:** Per Plan

DRILLING DATE: 3-7-94  
DRILLING METHOD: 10 " Hollow Stem Auger  
DRILLER: Valley Well Drilling  
LOGGED BY: J. G. Metcalf

[illegible]

**TOTAL DEPTH : 50 FEET.**

**NO GROUNDWATER ENCOUNTERED.**

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradual.



**Modified California Split Barrel Sampler**



**Modified California Split Barrel Sampler - No Recovery**



**Standard Penetration Test (SPT) Sampler**



**Standard Penetration Test (SPT) Sampler - No Recovery**



**Perched Water Level**



**Water Level First Encountered**



**Water Level After Drilling**



**Pocket Penetrometer (tsf)**



**Vane Shear (ksf)**

1. The approximate locations of borings were determined by sighting and pacing from nearby prominent topographic or cultural features. Borehole elevations were estimated by interpolating between available plan contour intervals. The location and elevation of each boring should be considered accurate only to the degree implied by this method.

2. Stratification lines represent the approximate boundary between soil and/or rock types. The transition between stratigraphic units may be gradual.

3. Water level readings taken in boreholes are approximate and apply only to the time and date of drilling. Fluctuations in the level of groundwater from the time of initial measurement may occur due to variations in rainfall, tides, barometric pressure, temperature, or other factors.







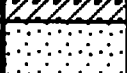
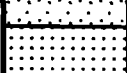
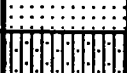








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**Symbols  
Commonly Used  
on Boring Logs**

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS  MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS  MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		G W	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				G P	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		G M	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				G C	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS  MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		S W	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				S P	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SAND WITH FINES (APPRECIABLE AMOUNT OF FINES)		S M	SILTY SANDS, SAND-SILT MIXTURES
				S C	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS  MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		M L	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				C L	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				O L	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		M H	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				C H	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				O H	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				P T	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.



## Earth Systems Consultants

A Member of The Earth Systems Group

1731-A Walter Street, Ventura, California 93003

PH: (805) 642-6727 FAX: (805) 642-1325

**United Soil  
Classification  
System (USCS)**

**APPENDIX B**  
**ANALYTICAL LABORATORY REPORT**



NATIONAL  
ENVIRONMENTAL  
TESTING, INC.®

Burbank Division  
700 South Flower Street  
Burbank, CA 91502  
Tel: (213) 849-6591  
Fax: (818) 567-6477

DOHS Certificate Number: 1192  
Expiration Date: May 31, 1994

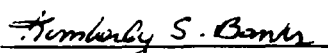
03/18/1994


Joel Metcalf  
Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

Client Ref: Penrose Landfill/SunValley  
Date Received: 03/07/1994

Sample analysis for the project referred to above has been completed and results are located on attached pages.

Should you have questions regarding procedures or results, please feel welcome to contact our Client Services Representatives or the Laboratory Director.

  
Kimberly S. Banks  
Project Manager

  
Rick Schrynmeeckers  
Laboratory Director

KB:rm  
Attachments:  
Analytical Reports  
Chain of Custody Document  
QA/QC Data Reports  
Invoice

Client Net Acct No: 10500  
NET Job No: 94.00345







## CASE NARRATIVE

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/31/1994

NET Job Number: 94.00345

Joel Metcalf

Following is the case narrative for the following samples  
submitted to NET, Inc. - Burbank for analysis:

### I. CROSS REFERENCE TABLE:

Sample Number	Sample Description	Date Taken	Date Received
62225	Boring 1 @ 25'	03/07/1994	03/07/1994
62226	Boring 1 @ 30'	03/07/1994	03/07/1994
62227	Boring 1 @ 40'	03/07/1994	03/07/1994
62228	Boring 1 @ 45'	03/07/1994	03/07/1994
62229	Boring 1 @ 50'	03/07/1994	03/07/1994

This Quality Control report is generated on a batch basis. All  
information contained in this report is for the analytical batch(es)  
in which your sample(s) were analyzed.



## CASE NARRATIVE (cont.)

### II. EXTRACTION:

No comments.

### III. ANALYSIS

#### A. Holding Times:

No comments.

#### B. Analytical Exceptions:

Methylene chloride was detected at 1 ug/Kg in sample 62225. This value should be considered as an estimate since it is below the PQL as indicated by "J" qualifier. Although this compound was not detected in the method blank, it is a common laboratory contaminant.

### IV. QUALITY CONTROL

#### A. Method Blanks:

No comments.

#### B. Surrogate Recoveries:

No comments.

#### C. Matrix Spike/Matrix Spike Duplicates (MS/MSD):

No comments.

#### D. Laboratory Control Samples (LCS):

No comments.

### V. OTHER

#### Continuing Calibration Verification:

Several analytes were above the recommended limit of 115% as indicated by the "cc" qualifier. None of these compounds were detected in the samples.



Client Name: Earth Systems Env.

Client Ref.: Penrose Landfill/SunValley

Date Sampled: 03/07/1994

NET Job No.: 94.00345

Date Reported: 03/31/1994

Sample ID : Boring 1 @ 25'

Lab No. : 62225

Sample Matrix: SOIL

Analytes/Method	Results	Flags	Units	MDL	PQL	Date	Prep	Run	Analyst
						Analyzed	Batch	Batch	
Method 418.1 (IR,TRPH)	ND		mg/Kg	2	10	03/14/1994		100	rmb
METHOD DOHS/LUFT,LDL									
Extraction Method	3550					03/09/1994	167	327	hlh
Date Extracted	03-09-94					03/09/1994	167	327	hlh
Dilution Factor	1					03/09/1994	167	327	hlh
TOT. PET. HYDROCARBON	--					03/09/1994	167	327	hlh
as Diesel	ND		mg/Kg	0.15	1	03/09/1994	167	327	hlh
as Kerosene	ND		mg/Kg	0.2	1	03/09/1994	167	327	hlh
Surrogate Spike-TPH	--					03/09/1994	167	327	hlh
Spk Conc Chlorobenzene	50		mg/Kg			03/09/1994	167	327	hlh
Chlorobenzene	78		% Rec.			03/09/1994	167	327	hlh
Spk Conc Di-n-octyl-phthalate	50		mg/Kg			03/09/1994	167	327	hlh
Di-n-octyl-phthalate	N/A		% Rec.			03/09/1994	167	327	hlh

ND: Not detected at the Method Detection Limit (MDL)

PQL: Practical Quantitation Limit

If a dilution factor greater than one (1) is reported the PQL and MDL must be multiplied by reported dilution factor to determine actual limits. A "D" flag indicates that only specific analytes have been reported from higher dilution.

page: 4



Client Name: Earth Systems Env.

Client Ref.: Penrose Landfill/SunValley

Date Sampled: 03/07/1994

NET Job No.: 94.00345

Date Reported: 03/31/1994

Sample ID : Boring 1 @ 25'

Lab No. : 62225

Sample Matrix: SOIL

Analytes/Method	Results	Flags	Units	MDL	PQL	Date Analyzed	Prep Batch	Run Batch	Analyst
METHOD 8010 & 8020 (GC,Solid)									
Extraction Method	5030					03/10/1994		80	shu
Date Extracted	03-10-94					03/10/1994		80	shu
Dilution Factor	1					03/10/1994		80	shu
Bromodichloromethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Bromoform	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
Bromomethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Carbon tetrachloride	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chloroethane	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
2-Chloroethylvinyl ether	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Chloroform	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chloromethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Dibromochloromethane	ND	cc	ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,3-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,4-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Dichlorodifluoromethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
1,1-Dichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1-Dichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
trans-1,2-Dichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichloropropane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
cis-1,3-Dichloropropene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
trans-1,3-Dichloropropene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Methylene chloride	1		ug/Kg	1.0	10	03/10/1994		80	shu
1,1,2,2-Tetrachloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Tetrachloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1,1-Trichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1,2-Trichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Trichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Trichlorofluoromethane	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
Vinyl chloride	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Benzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Ethylbenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Toluene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Xylenes (total)	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Surrogate Spike	--					03/10/1994		80	shu
2-Chlorotoluene	119		% Rec.			03/10/1994		80	shu
Spk Conc 2-Chlorotoluene	20		ug/Kg			03/10/1994		80	shu

ND: Not detected at the Method Detection Limit (MDL)

PQL: Practical Quantitation Limit

If a dilution factor greater than one (1) is reported the PQL and MDL must be multiplied by reported dilution factor to determine actual limits. A "D" flag indicates that only specific analytes have been reported from higher dilution.

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Client Name: Earth Systems Env.  
Client Ref.: Penrose Landfill/SunValley

Date Sampled: 03/07/1994

NET Job No.: 94.00345

Date Reported: 03/31/1994

Sample ID : Boring 1 @ 30'

Lab No. : 62226

Sample Matrix: SOIL

Analytes/Method	Results	Flags	Units	MDL	PQL	Date	Prep	Run	Analyst
						Analyzed	Batch	Batch	
Method 418.1 (IR,TRPH)	ND		mg/Kg	2	10	03/14/1994		100	rmb
METHOD DOHS/LUFT,LDL									
Extraction Method	3550					03/09/1994	167	327	hlh
Date Extracted	03-09-94					03/09/1994	167	327	hlh
Dilution Factor	1					03/09/1994	167	327	hlh
TOT. PET. HYDROCARBON	--					03/09/1994	167	327	hlh
as Diesel	ND		mg/Kg	0.15	1	03/09/1994	167	327	hlh
as Kerosene	ND		mg/Kg	0.2	1	03/09/1994	167	327	hlh
Surrogate Spike-TPH	--					03/09/1994	167	327	hlh
Spk Conc Chlorobenzene	50		mg/Kg			03/09/1994	167	327	hlh
Chlorobenzene	80		% Rec.			03/09/1994	167	327	hlh
Spk Conc Di-n-octyl-phthalate	50		mg/Kg			03/09/1994	167	327	hlh
Di-n-octyl-phthalate	N/A		% Rec.			03/09/1994	167	327	hlh

ND: Not detected at the Method Detection Limit (MDL)

PQL: Practical Quantitation Limit

If a dilution factor greater than one (1) is reported the PQL and MDL must be multiplied by reported dilution factor to determine actual limits. A "D" flag indicates that only specific analytes have been reported from higher dilution.

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Client Name: Earth Systems Env.

Client Ref.: Penrose Landfill/SunValley

Date Sampled: 03/07/1994

NET Job No.: 94.00345

Date Reported: 03/31/1994

Sample ID : Boring 1 @ 30'

Lab No. : 62226

Sample Matrix: SOIL

Analytes/Method	Results	Flags	Units	MDL	PQL	Date Analyzed	Prep Batch	Run Batch	Analyst
METHOD 8010 & 8020 (GC,Solid)									
Extraction Method	5030					03/10/1994		80	shu
Date Extracted	03-10-94					03/10/1994		80	shu
Dilution Factor	500					03/10/1994		80	shu
Bromodichloromethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Bromoform	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
Bromomethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Carbon tetrachloride	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chlorobenzene	13,000		ug/Kg	0.5	5	03/10/1994		80	shu
Chloroethane	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
2-Chloroethylvinyl ether	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Chloroform	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chloromethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Dibromochloromethane	ND	cc	ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,3-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,4-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Dichlorodifluoromethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
1,1-Dichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1-Dichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
trans-1,2-Dichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichloropropane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
cis-1,3-Dichloropropene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
trans-1,3-Dichloropropene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Methylene chloride	ND		ug/Kg	1.0	10	03/10/1994		80	shu
1,1,2,2-Tetrachloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Tetrachloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1,1-Trichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1,2-Trichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Trichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Trichlorofluoromethane	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
Vinyl chloride	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Benzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Ethylbenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Toluene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Xylenes (total)	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Surrogate Spike	--					03/10/1994		80	shu
2-Chlorotoluene	95		% Rec.			03/10/1994		80	shu
Spk Conc 2-Chlorotoluene	20		ug/Kg			03/10/1994		80	shu

ND: Not detected at the Method Detection Limit (MDL)

PQL: Practical Quantitation Limit

If a dilution factor greater than one (1) is reported the PQL and MDL must be multiplied by reported dilution factor to determine actual limits. A "D" flag indicates that only specific analytes have been reported from higher dilution.

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Client Name: Earth Systems Env.

Client Ref.: Penrose Landfill/SunValley

Date Sampled: 03/07/1994

NET Job No.: 94.00345

Date Reported: 03/31/1994

Sample ID : Boring 1 @ 40'

Lab No. : 62227

Sample Matrix: SOIL

Analytes/Method	Results	Flags	Units	MDL	PQL	Date Analyzed	Prep Batch	Run Batch	Analyst
Method 418.1 (IR,TRPH)	ND		mg/Kg	2	10	03/14/1994		100	rmb
METHOD DOHS/LUFT,LDL									
Extraction Method	3550					03/09/1994	167	327	hlh
Date Extracted	03-09-94					03/09/1994	167	327	hlh
Dilution Factor	1					03/09/1994	167	327	hlh
TOT. PET. HYDROCARBON	--					03/09/1994	167	327	hlh
as Diesel	ND		mg/Kg	0.15	1	03/09/1994	167	327	hlh
as Kerosene	6.4		mg/Kg	0.2	1	03/09/1994	167	327	hlh
Surrogate Spike-TPH	--					03/09/1994	167	327	hlh
Spk Conc Chlorobenzene	50		mg/Kg			03/09/1994	167	327	hlh
Chlorobenzene	78		% Rec.			03/09/1994	167	327	hlh
Spk Conc Di-n-octyl-phthalate	50		mg/Kg			03/09/1994	167	327	hlh
Di-n-octyl-phthalate	N/A		% Rec.			03/09/1994	167	327	hlh

ND: Not detected at the Method Detection Limit (MDL)

PQL: Practical Quantitation Limit

If a dilution factor greater than one (1) is reported the PQL and MDL must be multiplied by reported dilution factor to determine actual limits. A "D" flag indicates that only specific analytes have been reported from higher dilution.



Client Name: Earth Systems Env.

Client Ref.: Penrose Landfill/SunValley

Date Sampled: 03/07/1994

NET Job No.: 94.00345

Date Reported: 03/31/1994

Sample ID : Boring 1 @ 40'

Lab No. : 62227

Sample Matrix: SOIL

Analytes/Method	Results	Flags	Units	MDL	PQL	Date Analyzed	Prep Batch	Run Batch	Analyst
METHOD 8010 & 8020 (GC,Solid)									
Extraction Method	5030					03/10/1994		80	shu
Date Extracted	03-11-94					03/10/1994		80	shu
Dilution Factor	500					03/10/1994		80	shu
Bromodichloromethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Bromoform	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
Bromomethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Carbon tetrachloride	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chlorobenzene	11,000		ug/Kg	0.5	5	03/10/1994		80	shu
Chloroethane	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
2-Chloroethylvinyl ether	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Chloroform	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chloromethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Dibromochloromethane	ND	cc	ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,3-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,4-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Dichlorodifluoromethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
1,1-Dichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1-Dichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
trans-1,2-Dichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichloropropane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
cis-1,3-Dichloropropene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
trans-1,3-Dichloropropene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Methylene chloride	ND		ug/Kg	1.0	10	03/10/1994		80	shu
1,1,2,2-Tetrachloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Tetrachloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1,1-Trichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1,2-Trichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Trichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Trichlorofluoromethane	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
Vinyl chloride	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Benzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Ethylbenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Toluene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Xylenes (total)	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Surrogate Spike	--					03/10/1994		80	shu
2-Chlorotoluene	118		% Rec.			03/10/1994		80	shu
Spk Conc 2-Chlorotoluene	20		ug/Kg			03/10/1994		80	shu

ND: Not detected at the Method Detection Limit (MDL)

PQL: Practical Quantitation Limit

If a dilution factor greater than one (1) is reported the PQL and MDL must be multiplied by reported dilution factor to determine actual limits. A "D" flag indicates that only specific analytes have been reported from higher dilution.

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Client Name: Earth Systems Env.

Client Ref.: Penrose Landfill/SunValley

Date Sampled: 03/07/1994

NET Job No.: 94.00345

Date Reported: 03/31/1994

Sample ID : Boring 1 @ 45'

Lab No. : 62228

Sample Matrix: SOIL

Analytes/Method	Results	Flags	Units	MDL	PQL	Date	Prep	Run	Analyst
						Analyzed	Batch	Batch	
Method 418.1 (IR,TRPH)	ND		mg/Kg	2	10	03/14/1994		100	rmb
METHOD DOHS/LUFT,LDL									
Extraction Method	3550					03/09/1994	167	327	hlh
Date Extracted	03-09-94					03/09/1994	167	327	hlh
Dilution Factor	1					03/09/1994	167	327	hlh
TOT. PET. HYDROCARBON	--					03/09/1994	167	327	hlh
as Diesel	ND		mg/Kg	0.15	1	03/09/1994	167	327	hlh
as Kerosene	6.2		mg/Kg	0.2	1	03/09/1994	167	327	hlh
Surrogate Spike-TPH	--					03/09/1994	167	327	hlh
Spk Conc Chlorobenzene	50		mg/Kg			03/09/1994	167	327	hlh
Chlorobenzene	83		% Rec.			03/09/1994	167	327	hlh
Spk Conc Di-n-octyl-phthalate	50		mg/Kg			03/09/1994	167	327	hlh
Di-n-octyl-phthalate	N/A		% Rec.			03/09/1994	167	327	hlh

ND: Not detected at the Method Detection Limit (MDL)

PQL: Practical Quantitation Limit

If a dilution factor greater than one (1) is reported the PQL and MDL must be multiplied by reported dilution factor to determine actual limits. A "D" flag indicates that only specific analytes have been reported from higher dilution.

page: 10



Client Name: Earth Systems Env.

Client Ref.: Penrose Landfill/SunValley

Date Sampled: 03/07/1994

NET Job No.: 94.00345

Date Reported: 03/31/1994

Sample ID : Boring 1 @ 45'

Lab No. : 62228

Sample Matrix: SOIL

Analytes/Method	Results	Flags	Units	MDL	PQL	Date Analyzed	Prep Batch	Run Batch	Analyst
METHOD 8010 & 8020 (GC,Solid)									
Extraction Method	5030					03/10/1994		80	shu
Date Extracted	03-11-94					03/10/1994		80	shu
Dilution Factor	500					03/10/1994		80	shu
Bromodichloromethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Bromoform	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
Bromomethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Carbon tetrachloride	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chlorobenzene	11,000		ug/Kg	0.5	5	03/10/1994		80	shu
Chloroethane	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
2-Chloroethylvinyl ether	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Chloroform	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chloromethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Dibromochloromethane	ND	cc	ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,3-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,4-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Dichlorodifluoromethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
1,1-Dichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1-Dichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
trans-1,2-Dichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichloropropane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
cis-1,3-Dichloropropene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
trans-1,3-Dichloropropene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Methylene chloride	ND		ug/Kg	1.0	10	03/10/1994		80	shu
1,1,2,2-Tetrachloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Tetrachloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1,1-Trichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1,2-Trichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Trichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Trichlorofluoromethane	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
Vinyl chloride	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Benzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Ethylbenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Toluene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Xylenes (total)	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Surrogate Spike	--					03/10/1994		80	shu
2-Chlorotoluene	115		% Rec.			03/10/1994		80	shu
Spk Conc 2-Chlorotoluene	20		ug/Kg			03/10/1994		80	shu

ND: Not detected at the Method Detection Limit (MDL)

PQL: Practical Quantitation Limit

If a dilution factor greater than one (1) is reported the PQL and MDL must be multiplied by reported dilution factor to determine actual limits. A "D" flag indicates that only specific analytes have been reported from higher dilution.

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Client Name: Earth Systems Env.

Client Ref.: Penrose Landfill/SunValley

Date Sampled: 03/07/1994

NET Job No.: 94.00345

Date Reported: 03/31/1994

Sample ID : Boring 1 @ 50'

Lab No. : 62229

Sample Matrix: SOIL

Analytes/Method	Results	Flags	Units	MDL	PQL	Date	Prep	Run	Analyst
						Analyzed	Batch	Batch	
Method 418.1 (IR,TRPH)	ND		mg/Kg	2	10	03/14/1994		100	rmb
METHOD DOHS/LUFT,LDL									
Extraction Method	3550					03/09/1994	167	327	hlh
Date Extracted	03-09-94					03/09/1994	167	327	hlh
Dilution Factor	1					03/09/1994	167	327	hlh
TOT. PET. HYDROCARBON	--					03/09/1994	167	327	hlh
as Diesel	ND		mg/Kg	0.15	1	03/09/1994	167	327	hlh
as Kerosene	ND		mg/Kg	0.2	1	03/09/1994	167	327	hlh
Surrogate Spike-TPH	--					03/09/1994	167	327	hlh
Spk Conc Chlorobenzene	50		mg/Kg			03/09/1994	167	327	hlh
Chlorobenzene	79		% Rec.			03/09/1994	167	327	hlh
Spk Conc Di-n-octyl-phthalate	50		mg/Kg			03/09/1994	167	327	hlh
Di-n-octyl-phthalate	N/A		% Rec.			03/09/1994	167	327	hlh

ND: Not detected at the Method Detection Limit (MDL)

PQL: Practical Quantitation Limit

If a dilution factor greater than one (1) is reported the PQL and MDL must be multiplied by reported dilution factor to determine actual limits. A "D" flag indicates that only specific analytes have been reported from higher dilution.

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Client Name: Earth Systems Env.  
Client Ref.: Penrose Landfill/SunValley

Date Sampled: 03/07/1994

NET Job No.: 94.00345

Date Reported: 03/31/1994

Sample ID : Boring 1 @ 50'

Lab No. : 62229

Sample Matrix: SOIL

Analytes/Method	Results	Flags	Units	MDL	PQL	Date Analyzed	Prep Batch	Run Batch	Analyst
METHOD 8010 & 8020 (GC,Solid)									
Extraction Method	5030					03/10/1994		80	shu
Date Extracted	03-10-94					03/10/1994		80	shu
Dilution Factor	1					03/10/1994		80	shu
Bromodichloromethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Bromoform	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
Bromomethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Carbon tetrachloride	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chloroethane	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
2-Chloroethylvinyl ether	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Chloroform	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Chloromethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Dibromochloromethane	ND	cc	ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,3-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,4-Dichlorobenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Dichlorodifluoromethane	ND		ug/Kg	1.0	10	03/10/1994		80	shu
1,1-Dichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1-Dichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
trans-1,2-Dichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,2-Dichloropropane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
cis-1,3-Dichloropropene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
trans-1,3-Dichloropropene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Methylene chloride	ND		ug/Kg	1.0	10	03/10/1994		80	shu
1,1,2,2-Tetrachloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Tetrachloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1,1-Trichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
1,1,2-Trichloroethane	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Trichloroethene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Trichlorofluoromethane	ND	cc	ug/Kg	1.0	10	03/10/1994		80	shu
Vinyl chloride	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Benzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Ethylbenzene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Toluene	ND		ug/Kg	0.5	5	03/10/1994		80	shu
Xylenes (total)	ND		ug/Kg	1.0	10	03/10/1994		80	shu
Surrogate Spike	--					03/10/1994		80	shu
2-Chlorotoluene	98		% Rec.			03/10/1994		80	shu
Spk Conc 2-Chlorotoluene	20		ug/Kg			03/10/1994		80	shu

ND: Not detected at the Method Detection Limit (MDL)

PQL: Practical Quantitation Limit

If a dilution factor greater than one (1) is reported the PQL and MDL must be multiplied by reported dilution factor to determine actual limits. A "D" flag indicates that only specific analytes have been reported from higher dilution.



## QUALITY CONTROL REPORT

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

NET Job Number: 94.00345

Joel Metcalf

Enclosed is the Quality Control data for the following samples submitted to NET, Inc. - Burbank for analysis:

Sample Number	Sample Description	Date Taken	Date Received
62225	Boring 1 @ 25'	03/07/1994	03/07/1994
62226	Boring 1 @ 30'	03/07/1994	03/07/1994
62227	Boring 1 @ 40'	03/07/1994	03/07/1994
62228	Boring 1 @ 45'	03/07/1994	03/07/1994
62229	Boring 1 @ 50'	03/07/1994	03/07/1994

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.



## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

Joel Metcalf

NET Job Number: 94.00345

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
Method 418.1 (IR,TRPH)		100		54	51	94.4
METHOD DOHS/LUFT,LDL						
as Diesel		327		500.0	468.0	93.6
Chlorobenzene		327		50.0	36.8	73.6
Di-n-octyl-phthalate		327		50.0	36.7	73.4

CCV - Continuing Calibration Verification



## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

Joel Metcalf

NET Job Number: 94.00345

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
METHOD 8010 & 8020 (GC,Solid)						
Bromodichloromethane		80		10.0	10.7	107.0
Bromoform		80	cc	10.0	13.9	139.0
Bromomethane		80		10.0	9.3	93.0
Carbon tetrachloride		80		10.0	10.6	106.0
Chlorobenzene		80		10.0	9.86	98.6
Chloroethane		80	cc	10.0	11.7	117.0
2-Chloroethylvinyl ether		80		10.0	10.6	106.0
Chloroform		80		10.0	10.5	105.0
Chloromethane		80		10.0	11.5	115.0
Dibromochloromethane		80	cc	10.0	11.6	116.0
1,2-Dichlorobenzene		80		10.0	11.4	114.0
1,3-Dichlorobenzene		80		10.0	10.9	109.0
1,4-Dichlorobenzene		80		10.0	11.4	114.0
Dichlorodifluoromethane		80		10.0	11.1	111.0
1,1-Dichloroethane		80		10.0	10.2	102.0
1,2-Dichloroethane		80		10.0	10.5	105.0
1,1-Dichloroethene		80		10.0	9.61	96.1
trans-1,2-Dichloroethene		80		10.0	8.77	87.7
1,2-Dichloropropane		80		10.0	10.3	103.0
cis-1,3-Dichloropropene		80		10.0	10.4	104.0
trans-1,3-Dichloropropene		80		10.0	10.4	104.0
Methylene chloride		80		10.0	10.0	100.0
1,1,2,2-Tetrachloroethane		80		10.0	9.52	95.2
Tetrachloroethene		80		10.0	9.78	97.8

CCV - Continuing Calibration Verification



## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

Joel Metcalf

NET Job Number: 94.00345

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
1,1,1-Trichloroethane		80		10.0	10.3	103.0
1,1,2-Trichloroethane		80		10.0	11.2	112.0
Trichloroethene		80		10.0	9.92	99.2
Trichlorofluoromethane		80	cc	10.0	11.9	119.0
Vinyl chloride		80		10.0	11.2	112.0
Benzene		80		10.0	10.4	104.0
Ethylbenzene		80		10.0	10.9	109.0
Toluene		80		10.0	10.6	106.0
Xylenes (total)		80		30.0	31.7	105.7
2-Chlorotoluene		80		10.0	10.8	108.0

CCV - Continuing Calibration Verification





## QUALITY CONTROL REPORT BLANKS

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

Joel Metcalf

NET Job Number: 94.00345

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Flags	Units
Method 418.1 (IR,TRPH)		100	ND		mg/Kg
METHOD DOHS/LUFT,LDL					
as Diesel	167	327	ND		mg/Kg
as Kerosene	167	327	ND		mg/Kg
Surrogate Spike-TPH	167	327	--		
Spk Conc Chlorobenzene	167	327	50		mg/Kg
Chlorobenzene	167	327	74		% Rec.
Spk Conc Di-n-octyl-phthalate	167	327	50		mg/Kg
Di-n-octyl-phthalate	167	327	N/A		% Rec.

### Advisory Control Limits for Blanks:

Organics/Metals/Wet Chemistry/ Conventional/GC - all compounds should be less than 1/2 the Reporting Limit.



## QUALITY CONTROL REPORT BLANKS

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

Joel Metcalf

NET Job Number: 94.00345

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Flags	Units
METHOD 8010 & 8020 (GC,Solid)					
Bromodichloromethane		80	ND		ug/Kg
Bromoform		80	ND		ug/Kg
Bromomethane		80	ND		ug/Kg
Carbon tetrachloride		80	ND		ug/Kg
Chlorobenzene		80	ND		ug/Kg
Chloroethane		80	ND		ug/Kg
2-Chloroethylvinyl ether		80	ND		ug/Kg
Chloroform		80	ND		ug/Kg
Chloromethane		80	ND		ug/Kg
Dibromochloromethane		80	ND		ug/Kg
1,2-Dichlorobenzene		80	ND		ug/Kg
1,3-Dichlorobenzene		80	ND		ug/Kg
1,4-Dichlorobenzene		80	ND		ug/Kg
Dichlorodifluoromethane		80	ND		ug/Kg
1,1-Dichloroethane		80	ND		ug/Kg
1,2-Dichloroethane		80	ND		ug/Kg
1,1-Dichloroethene		80	ND		ug/Kg
trans-1,2-Dichloroethene		80	ND		ug/Kg
1,2-Dichloropropane		80	ND		ug/Kg
cis-1,3-Dichloropropene		80	ND		ug/Kg
trans-1,3-Dichloropropene		80	ND		ug/Kg
Methylene chloride		80	ND		ug/Kg
1,1,2,2-Tetrachloroethane		80	ND		ug/Kg
Tetrachloroethene		80	ND		ug/Kg
1,1,1-Trichloroethane		80	ND		ug/Kg
1,1,2-Trichloroethane		80	ND		ug/Kg
Trichloroethene		80	ND		ug/Kg
Trichlorofluoromethane		80	ND		ug/Kg

### Advisory Control Limits for Blanks:

Organics/Metals/Wet Chemistry/ Conventional/GC - all compounds should be less than 1/2 the Reporting Limit.



## QUALITY CONTROL REPORT BLANKS

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

Joel Metcalf

NET Job Number: 94.00345

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Flags	Units
Vinyl chloride		80	ND		ug/Kg
Benzene		80	ND		ug/Kg
Ethylbenzene		80	ND		ug/Kg
Toluene		80	ND		ug/Kg
Xylenes (total)		80	ND		ug/Kg
Surrogate Spike		80	--		
2-Chlorotoluene		80	89		% Rec.
Spk Conc 2-Chlorotoluene		80	20		ug/Kg

Advisory Control Limits for Blanks:

Organics/Metals/Wet Chemistry/ Conventional/GC - all compounds should be less than 1/2 the Reporting Limit.



## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

Joel Metcalf

NET Job Number: 94.00345

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Flags/ % RPD*	Units
Method 418.1 (IR,TRPH)		100	54	51	94.4		mg/Kg
METHOD DOHS/LUFT,LDL							
as Diesel	167	327	10	10.9	109.0		mg/Kg
Chlorobenzene	167	327	5	3.5	70.0		% Rec.
Di-n-octyl-phthalate	167	327	5	5.6	112.0		% Rec.



## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

Joel Metcalf

NET Job Number: 94.00345

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Flags/ % RPD*	Units
METHOD 8010 & 8020 (GC,Solid)							
Chlorobenzene		80	20	22.4	112.0		ug/Kg
1,1-Dichloroethene		80	20	17.4	87.0		ug/Kg
Trichloroethene		80	20	16.9	84.5		ug/Kg
Benzene		80	20	16.6	83.0		ug/Kg
Toluene		80	20	17.0	85.0		ug/Kg
2-Chlorotoluene		80	20	24.6	123.0		% Rec.

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

\*LCS/LCS DUPLICATE



## QUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

Joel Metcalf

NET Job Number: 94.00345

NET Matrix Spike Sample ID:

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike/ MSD Amount	Units	Percent Recovery	MSD Result	Percent Recovery	MS/MSD RPD	Flags
Method 418.1 (IR,TRPH)		100	49.9	ND	54	mg/Kg	92.4	50.7	93.9	1.6	
METHOD DOHS/LUFT,LDL as Diesel	167	327	12.4	ND	10	mg/Kg	124.0	11.4	114.0	8.4	

MS = Matrix Spike

MSD = Matrix Spike Duplicate

RPD = Relative Percent Difference



# QUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Earth Systems Env.  
1731-B Walter St.  
Ventura, CA 93003

03/29/1994

Joel Metcalf

NET Job Number: 94.00345  
NET Matrix Spike Sample ID:

Analyte	Prep	Run	Matrix	Spike/		Percent	MSD	Percent	MS/MSD	Flags
	Batch	Batch	Spike	Sample	MSD		Result	Recovery	RPD	
	Number	Number	Result	Result	Amount	Units	Recovery	Result	Recovery	RPD
METHOD 8010 & 8020 (GC,Solid)										
Chlorobenzene		80	19.5	ND	20	ug/Kg	97.5	19.8	99.0	1.5
1,1-Dichloroethene		80	20.9	ND	20	ug/Kg	104.5	19.3	96.5	7.9
Trichloroethene		80	24.0	ND	20	ug/Kg	120.0	22.2	111.0	7.8
Benzene		80	22.7	ND	20	ug/Kg	113.5	20.8	104.0	8.7
Toluene		80	22.9	ND	20	ug/Kg	114.5	21.1	105.5	8.2

MS = Matrix Spike

MSD = Matrix Spike Duplicate

RPD = Relative Percent Difference



## ACCEPTANCE LIMITS

## MATRIX SPIKE/MATRIX SPIKE DUPLICATE

ANALYTE	ANALYTICAL METHOD	SOIL/SLUDGE MATRIX		WATER MATRIX	
		%R (RANGE)	MAX % RPD	%R (RANGE)	MAX % RPD

## 17 CAM Metals

Antimony	6010	20-125	25	50-120	20
Arsenic	7061	55-120	30	75-115	25
Barium	6010	75-120	20	80-120	25
Beryllium	6010	80-120	15	80-120	10
Cadmium	6010	80-120*	20	80-115	10
Chromium	6010	80-115	20	85-110	10
Cobalt	6010	75-115	25	80-110	10
Copper	6010	75-115	20	80-120*	15
Lead	6010	80-120*	20	80-120*	20
Mercury	7471/7470	60-120	15	60-120	15
Molybdenum	6010	80-120	15	85-115	10
Nickel	6010	80-115	15	80-120	15
Selenium	7741	50-125	30	60-125	25
Silver	6010	75-125*	15	75-125*	15
Thallium	6010	70-115	20	75-115	15
Vanadium	6010	80-115	10	85-115	10
Zinc	6010	75-120*	20	80-120*	15

## Volatiles 601/602/624/8010/8020/8260

Dichloroethene	70-130*	25*	70-130*	25*
Trichloroethene	70-130*	25*	70-130*	25*
Benzene	70-130*	25*	70-130*	25*
Toluene	70-130*	25*	70-130*	25*
Chlorobenzene	70-130*	25*	70-130*	25*

## Semi-Volatiles 625/8270 Base Neutral Acids

Acenaphthene	31-187	19	46-118	31
1,4-Dichlorobenzene	28-104	27	36- 97	28
2,4-Dinitrotoluene	28- 89	47	24- 96	38
N-Nitroso-di-N-Propylamine	41-126	38	41-116	38
Pyrene	35-142	36	26-127	31
1,2,4-Trichlorobenzene	38-107	23	39- 98	28
4-Chloro-3-methylphenol	26-103	39	23- 97	42
2-Chlorophenol	25-102	50	27-123	40
4-Nitrophenol	11-114	50	10- 80	50
Pentachlorophenol	17-109	47	9- 103	50
Phenol	26-90	35	12- 89	42





## ACCEPTANCE LIMITS

## MATRIX SPIKE/MATRIX SPIKE DUPLICATE

ANALYTE	ANALYTICAL METHOD	SOIL/SLUDGE MATRIX		WATER MATRIX	
		%R (RANGE)	MAX % RPD	%R (RANGE)	MAX % RPD
Fuel Hydrocarbon	8015 MOD.				
Gas		70-130*	25*	70-130*	25*
Diesel		50-150*	25*	50-150*	25*
Total Recoverable Petroleum Hydrocarbon (TRPH)	418.1	70-130*	25*	70-130*	25*

\*Advisory Limits



## Method Daily RF Check

Method File Name: C:\NLSO501\HALC.MET

Run Time:12-30-1993 11:36:34

Standard File Name: A:BU6.ATB

Run Time:03-10-1994 13:29:45

No.	COMPOUND NAME	Aver RF	CRSD	Daily RF	%Diff with Aver RF
1	DICHLORODIFMETHANE	8.6557E-05	17.083	7.3050E-05	10.337
2	CHLOROMETHANE	6.1787E-05	11.246	5.3534E-05	14.313
3	VINYL CHLORIDE	4.0732E-05	16.900	3.6325E-05	11.437
4	BROMOMETHANE	2.9512E-04	12.615	3.1692E-04	7.125
5	CHLOROETHANE	3.8145E-05	11.442	3.2497E-05	15.989
6	TRICLFMETHANE	3.2957E-05	11.794	2.7642E-05	17.542
7	FREON113	7.3814E-04	113.078	0.0000E+00	200.000
8	1,1 DICHLOROETHENE	2.3470E-05	15.914	2.4444E-05	4.064
9	METHYLENE CHLORIDE	1.8840E-05	10.058	1.3816E-05	26.125
10	TRANS-1,2DICLEHENE	2.2035E-05	17.539	2.5144E-05	13.183
11	1,1 DICHLOROETHANE	2.1947E-05	14.157	2.1406E-05	2.039
12	CIS-12DCE	1.5326E-05	117.905	0.0000E+00	200.000
13	CHLOROFORM	1.7164E-05	18.657	1.6271E-05	5.347
14	1,1,1TRICLETHANE	2.0379E-05	17.835	1.9691E-05	3.433
15	CARBONTETRA.CHLO.	1.9911E-05	14.129	1.8798E-05	6.750
16	1,2 DICHLOROETHANE	2.9362E-05	12.093	2.7982E-05	4.812
17	TRICHLOROETHYLENE	2.1545E-05	15.052	2.1719E-05	0.804
18	1,2 DICHL PROPANE	2.6689E-05	14.654	2.3364E-05	13.141
19	BROMODICLMETHANE	2.7708E-05	14.778	2.5908E-05	6.714
20	COLENTYL VINYLETHER	3.9213E-05	10.063	3.3726E-05	13.692
21	CIS-1,3DICLPROPENE	2.5663E-05	18.002	2.4649E-05	4.029
22	TRANS-1,3DICLPROPENE	4.0184E-05	11.176	3.8496E-05	4.285
23	1,1,2,2,TRICHLOROETHANE	2.9506E-05	13.809	2.6430E-05	10.996
24	TETRACHLOROETHENE	1.2692E-05	16.761	1.0135E-05	20.217
25	DIBROMOMETHANE	4.8014E-05	10.913	4.1488E-05	14.382
26	CHLOROBENZENE	4.7032E-05	10.973	4.7738E-05	1.449
27	BROMOFORM	1.4436E-04	15.152	1.0355E-04	28.933
28	1,1,2,2TETRACLETHANE	4.3779E-05	16.752	4.8123E-05	10.003
29	1-CHLOROTUNE	4.6762E-05	19.130	4.3304E-05	7.680
30	1,3 DICLBENZENE	4.4889E-05	19.743	4.1212E-05	8.540
31	1,4 DICLBENZENE	4.2583E-05	19.088	3.3305E-05	27.294
32	1,2 DICHLOROBENZEN	3.7213E-05	17.482	3.2641E-05	13.105



# Method Daily RF Check

Method File Name: C:\N\NLSON501\IAL.MET

Run Time:06-02-1993 11:07:30

Standard File Name: A:CU6.ATB

Run Time:03-10-1994 13:29:45

No.	COMPOUND NAME	Aver RF	%RSD	Daily RF	%Diff with Aver RF
1	Vinyl Chloride	1.5642E-04	33.825	1.4761E-04	5.799
2	1,1Dichloroethylen	7.9730E-05	8.559	9.2400E-05	14.722
3	Trans1,2DiClEthene	3.7315E-05	7.832	4.1615E-05	10.896
4	Benzene	3.4594E-05	8.564	3.3334E-05	3.711
5	Trichloroethylene	5.5834E-05	8.170	5.8258E-05	4.250
6	2Cl-Vinyl Ether	1.0978E-04	13.343	1.1464E-04	4.327
7	Cis1,3DiCl-Propene	1.2086E-04	12.645	1.2728E-04	5.177
8	TOLUENE	3.6570E-05	11.113	3.4625E-05	5.465
9	Trn1,3DiCl-Propene	1.2218E-04	12.335	1.2034E-04	1.514
10	TETRA-CL-ETHYLENE	7.0198E-05	9.890	7.5813E-05	7.691
11	Chlorobenzene	3.3836E-05	12.711	3.4274E-05	1.287
12	Ethylbenzene	4.0389E-05	10.424	3.6959E-05	8.870
13	M&P-XYLENE	3.5448E-05	10.103	3.2382E-05	9.042
14	O-XYLENE	3.8776E-05	16.403	3.9366E-05	1.508
15	2Chlorotoluene	3.7522E-05	9.783	3.0721E-05	19.930
16	1-3DiChlorobenzene	3.9539E-05	18.422	3.7362E-05	5.880
17	1-4DiChlorobenzene	3.9991E-05	18.744	3.7249E-05	7.101
18	1-2DiChlorobenzene	5.3867E-05	26.263	4.8375E-05	14.373



94 0045

## EPA 3010 Calibration RF Check

File Name: C:\NLSO501\HALC.MET

Run Time:12-30-1993 11:36:34

COMPOUND NAME	RF1	RF2	RF3	RF4	RF5	Aver RF	SIGMA	%RSD	Areal (0 PPB)
1,1-DICHLORODIFLUOROMETHANE	1.0969E-04	8.6651E-05	7.2463E-05	7.4913E-05	8.8874E-05	8.6557E-05	1.4787E-05	17.083	115530
1,1-DICHLOROMETHANE	5.5102E-05	6.4456E-05	5.1389E-05	5.7853E-05	6.9634E-05	5.1787E-05	5.9486E-06	11.246	151847
VINYL CHLORIDE	3.3491E-05	4.0719E-05	3.4886E-05	4.4354E-05	5.0210E-05	4.0732E-05	5.8839E-06	16.900	245507
BROMOMETHANE	2.5667E-04	2.5492E-04	3.4076E-04	1.8700E-04	3.2625E-04	2.9512E-04	3.7228E-05	12.615	33885
1,1-DICHLOROETHANE	3.7533E-05	4.1051E-05	3.0799E-05	4.0098E-05	4.1243E-05	3.9145E-05	4.3646E-06	11.442	262160
1,1,1-TRICHLOROMETHANE	3.2441E-05	3.3419E-05	2.6412E-05	3.6613E-05	3.4902E-05	3.2957E-05	3.8871E-06	11.794	303424
PERFLUOROTRIFLUOROMETHANE	3.5516E-03	4.9116E-05	4.1937E-05	2.9003E-05	1.9042E-05	7.3814E-04	1.5728E-03	213.078	13548
1,1-DICHLOROETHYLENE	1.8440E-05	2.2132E-05	2.2638E-05	2.5047E-05	2.8093E-05	2.3470E-05	3.7350E-06	15.914	426078
ETHYLENE CHLORIDE	1.9602E-05	1.6476E-05	1.9364E-05	2.0009E-05	1.9748E-05	1.8840E-05	1.3949E-06	10.058	530794
TRANS-1,2-DICLEHENE	1.6585E-05	1.0899E-05	2.1770E-05	1.3842E-05	2.7077E-05	2.2035E-05	3.8647E-06	17.539	453833
1,1-DICHLOROETHANE	1.6933E-05	2.2079E-05	2.2133E-05	2.2129E-05	2.6610E-05	2.1847E-05	3.0929E-06	14.157	457730
IS-120CE	6.9553E-05	3.9249E-05	7.5038E-03	2.9730E-05	2.0621E-05	1.5326E-03	3.3331E-03	217.805	5525
CHLOROFORM	1.1749E-05	1.7797E-05	1.7635E-05	1.8169E-05	2.0473E-05	1.7164E-05	3.2367E-06	18.857	582601
1,1,1-TRICLLETHANE	1.4556E-05	2.1189E-05	1.0158E-05	2.1491E-05	2.4500E-05	1.8379E-05	3.6344E-06	17.835	490711
ARBONTETRA.CHLO.	1.6470E-05	2.0623E-05	1.9339E-05	2.0873E-05	2.3050E-05	1.9911E-05	2.9133E-06	14.129	502234
1,1-DICHLOROETHANE	1.4340E-05	1.1649E-05	2.9732E-05	1.7755E-05	3.3932E-05	1.9362E-05	3.5506E-06	12.093	340580
TRICHLOROETHYLENE	1.6844E-06	1.2410E-05	2.0510E-05	2.2208E-05	2.6753E-05	1.1545E-05	3.2429E-06	15.052	464145
1,2-DICHLOROPROPANE	2.0735E-05	2.9248E-05	2.6219E-05	2.6617E-05	3.1567E-05	2.6689E-05	3.9110E-06	14.654	374684
BROMODICHLOROMETHANE	2.1217E-05	1.9605E-05	2.3057E-05	1.7061E-05	3.2002E-05	1.7708E-05	4.0948E-06	14.778	360903
OLEFTHYL VINYLETHER	4.1403E-05	1.1030E-04	4.6594E-05	3.9935E-05	1.0436E-04	4.9213E-05	1.0282E-05	10.363	100789
IS-1,3-DICLPROPENE	1.8706E-05	2.6299E-05	2.5901E-05	1.5702E-05	3.1705E-05	2.5663E-05	4.6199E-06	18.002	369673
TRANS-1,3-DICLPROPENE	3.4129E-05	4.4714E-05	4.0355E-05	3.7505E-05	4.4218E-05	4.0184E-05	4.4909E-06	11.176	248854
1,1,2-TRICHLOROETHANE	1.2188E-05	3.1679E-05	3.0334E-05	2.9795E-05	3.4543E-05	2.9506E-05	4.6057E-06	15.609	338917
TETRACHLOROETHENE	1.4432E-05	2.0567E-05	1.9096E-05	2.1102E-05	2.2270E-05	1.9693E-05	3.3007E-06	16.761	507787
BROMOCHLOROMETHANE	4.1835E-05	5.4612E-05	4.9869E-05	4.3569E-05	5.0384E-05	4.8014E-05	5.2397E-06	10.913	208274
CHLOROBENZENE	3.5152E-05	5.2299E-05	4.5775E-05	4.7561E-05	5.4472E-05	4.7052E-05	7.5181E-06	15.978	212532
BROMOFORM	1.7730E-04	1.6937E-04	1.1844E-04	1.3437E-04	1.3332E-04	1.4436E-04	2.3317E-05	16.152	69271
1,2-DICHLOROETHANE	3.4259E-05	4.7933E-05	4.5826E-05	4.5220E-05	5.5657E-05	4.5779E-05	7.6691E-06	16.752	213440
CHLOROTUNE	4.1549E-05	5.0787E-05	3.8209E-05	5.0515E-05	4.2750E-05	4.6762E-05	5.9691E-06	19.180	213348
1,3-DICL BENZENE	3.7817E-05	4.4130E-05	4.9092E-05	4.5786E-05	4.7620E-05	4.4889E-05	4.3736E-06	9.743	222772
1,4-DICL BENZENE	3.7818E-05	4.7205E-05	4.0628E-05	4.0632E-05	4.6630E-05	4.2593E-05	4.1256E-06	9.688	234838
1,2-DICHLOROBENZEN	2.7586E-05	3.6525E-05	3.6605E-05	3.7534E-05	4.5842E-05	3.7218E-05	5.5065E-06	17.482	368685



# EPA 8020 Calibration RF Check

File Name: C:\NLS0N501\IAL.MET

Run Time: 06-02-1993 11:07:30

COMPOUND NAME	RF1	RF2	RF3	RF4	RF5	Aver RF	SIGMA	%RSD	Area( 10 PPB)
Vinyl Chloride	3.5602E-05	1.4449E-04	1.3773E-04	1.9063E-04	1.2366E-04	1.5542E-04	5.2910E-05	33.325	63929
Dichloroethylen	7.1364E-05	7.7668E-05	7.6167E-05	8.5876E-05	8.7576E-05	7.9730E-05	5.8242E-06	8.559	125423
Transl.2DiClEthene	3.3441E-05	3.6591E-05	3.6073E-05	4.0110E-05	4.0360E-05	3.7315E-05	2.9224E-06	7.832	267989
Benzene	3.0165E-05	3.3662E-05	3.4709E-05	3.7862E-05	3.6574E-05	3.4594E-05	1.9625E-06	9.564	289065
Chloroethylene	4.9452E-05	5.4509E-05	5.4668E-05	6.0138E-05	6.0401E-05	5.5834E-05	4.5616E-06	8.170	179104
Di-Vinyl Ether	3.2990E-05	3.8288E-05	1.1167E-04	1.2977E-04	1.1620E-04	1.0978E-04	1.4649E-05	13.343	91088
Di1,3DiCl-Propene	1.3040E-04	1.1156E-04	1.2339E-04	1.3958E-04	1.2936E-04	1.2086E-04	1.5282E-05	12.645	32741
UENE	3.0440E-05	3.5155E-05	3.6877E-05	4.0498E-05	3.9380E-05	3.6570E-05	4.0640E-06	11.113	273447
1,3DiCl-Propene	1.3272E-04	1.1203E-04	1.2507E-04	1.4108E-04	1.3000E-04	1.2218E-04	1.5071E-05	12.335	31846
TETRA-CL-ETHYLENE	3.0529E-05	6.7695E-05	6.8927E-05	7.6188E-05	7.7650E-05	7.0198E-05	6.9424E-06	9.890	142455
orobenzene	2.7762E-05	3.1501E-05	3.4333E-05	3.8009E-05	3.7575E-05	3.3836E-05	4.3007E-06	12.711	295543
yibenzene	3.4420E-05	3.6840E-05	3.9927E-05	4.3749E-05	4.5012E-05	4.0389E-05	4.2102E-06	10.424	147589
M-P-XYLENE	3.0372E-05	3.3971E-05	3.5181E-05	3.8732E-05	3.8984E-05	3.5448E-05	3.5814E-06	10.133	182104
XYLENE	3.3975E-05	3.9450E-05	4.2122E-05	4.1204E-05	4.7130E-05	3.3776E-05	3.3606E-06	16.403	257890
loroToluene	1.5492E-05	3.3552E-05	4.3237E-05	3.6853E-05	3.8475E-05	3.7522E-05	3.6708E-06	9.763	166511
1,2Dichlorobenzene	1.0335E-05	3.5054E-05	3.9063E-05	4.4754E-05	4.5476E-05	3.9539E-05	7.2839E-06	13.422	152917
1,4Dichlorobenzene	1.0622E-05	3.5292E-05	3.9356E-05	4.5555E-05	4.6130E-05	3.9991E-05	7.4960E-06	13.744	150057
Dichlorobenzene	1.0083E-05	4.5903E-05	3.9356E-05	4.4652E-05	4.610E-05	3.5367E-05	1.4672E-05	21.233	178998



CALIBRATION STANDARD

NET Job Number 94.00356

COMPOUND	Initial Calibration		Daily Calibration	
	Initial RFave	% RSD	Daily RF	% Diff w/RFave
TRPH (EPA 418.1) Mod. 8015 as Diesel	714	2.0	--	--
	3.36 E-5	8.3	3.2 E-5	4.9
Method	Initial Calibration Date		Daily Calibration Date	
TRPH (EPA 418.1)	3/14/94		3/14/94	
Mod. 8015 as Diesel	9/18/93		3/9/94	



ADVISORY CONTROL LIMITS FOR BLANKS:

Organics/Metals/Wet Chemistry/ Conventional/GC-

All compounds should be less than 1/2 the Reporting Limit.

SURROGATE SPIKE RECOVERY (% RECOVERY) IN BLANKS AND SAMPLES:

	Soil/Sludge Matrix	Water Matrix
EPA Method 601/8010 for Volatiles:		
2-Chlorotoluene	70-130*	70-130*
EPA Method 602/8020 for Volatiles:		
Chlorobenzene	70-130*	70-130*
EPA Method 624/8240/8260 for Volatiles:		
1,2-Dichloroethane-d4	70-130*	70-130*
Toluene d-8	70-130*	70-130*
Bromofluorobenzene	70-130*	70-130*
EPA Method 625/8270 for Semi-Volatiles/ Base Neutral Acids		
Nitrobenzene-d5	23-120	35-114
2-Fluorobiphenyl	30-115	43-116
Terphenyl-d14	18-137	33-141
Phenol -d5	24-113	10- 94
2-Fluorophenol	25-121	21-100
2,4,6-Tribromophenol	19-122	10-123
Method 8015 Modified for Fuel Hydrocarbon		
as gas:		
Bromofluorobenzene	70-130*	70-130*
Method DOHS/LUFT		
as diesel/kerosene:		
Chlorobenzene	60-140*	60-140*
Di-octyl phthalate	60-140*	60-140*

\*Advisory limits.



NET ENVIRONMENTAL  
TESTING, INC.

# CHAIN OF CUSTODY RECORD

COMPANY EARTH SYSTEMS CONSULTANTS  
ADDRESS 1731-A WALTER ST, VENTURA 93003  
PHONE (805) 642-6727 FAX (805) 642-1325  
PROJECT NAME/LOCATION PENROSE LANDFILL / SUN VALLEY  
PROJECT NUMBER SL-19926-VI  
PROJECT MANAGER JOEL G. METCALF

REPORT TO: EARTH SYSTEMS

INVOICE TO: SAME

P.O. NO. SL-19926-VI

NET QUOTE NO. 94.0061

SAMPLED BY  
JOEL G. METCALF  
(PRINT NAME)

(PRINT NAME)

Joel G. Metcalf  
SIGNATURE  
SIGNATURE

## ANALYSES

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS TYPE	MATRIX	PRESERVED Y/N	Method 48.1	Method 8015*	8010	8020	COMMENTS
3/7	9:24	BORING #1 @ 25'			1 TUBE	SOIL		✓	✓	✓	✓	ALL TESTS PER LARWQCB WIP PROTOCOLS -  * Incl. Fingerprint per client J Conlan 11 3/8 qu.
"	9:30	" " @ 30'			"	"		✓	✓	✓	✓	
"	11:20	" " @ 40'			"	"		✓	✓	✓	✓	
"	11:35	" " @ 45'			"	"		✓	✓	✓	✓	
"	11:45	" " @ 50'			"	"		✓	✓	✓	✓	

CONDITION OF SAMPLE: BOTTLES INTACT? YES NO  
FIELD FILTERED? YES / NO N/A

COC SEALS PRESENT AND INTACT? YES / NO  
VOLATILES FREE OF HEADSPACE? YES / NO Brass  
N/A Tubes

TEMPERATURE UPON RECEIPT: 40°C

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA \_\_\_\_\_  
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS \_\_\_\_\_

DATE \_\_\_\_\_

RELINQUISHED BY: Joel Metcalf  
DATE/TIME: 3-7-94 4:05 PM  
METHOD OF SHIPMENT \_\_\_\_\_

RECEIVED BY: Charles A.  
REMARKS: \_\_\_\_\_

RELINQUISHED BY: \_\_\_\_\_ DATE/TIME: \_\_\_\_\_  
RECEIVED FOR NET BY: \_\_\_\_\_







## ACCEPTANCE LIMITS

LABORATORY QUALITY CONTROL CHECK SAMPLE/  
LABORATORY CONTROL SAMPLE (LCS)

ANALYTE	ANALYTICAL METHOD	SOIL/SLUDGE MATRIX		WATER MATRIX	
		%R (RANGE)	MAX % RPD**	%R (RANGE)	MAX %RPD**
Fuel Hydrocarbon 8015 MOD. Gas		80-120*	20*	80-120*	20*
Diesel		80-120*	20*	80-120*	20*
Total Recoverable Petroleum Hydrocarbon (TRPH)	418.1	80-120*	20*	80-120*	20*

\* Advisory Limits

\*\* % RPD for LCS/LCS Duplicate



## ACCEPTANCE LIMITS

LABORATORY QUALITY CONTROL CHECK SAMPLE /  
LABORATORY CONTROL SAMPLE (LCS)

ANALYTE	ANALYTICAL METHOD	SOIL/SLUDGE MATRIX		WATER MATRIX	
		%R (RANGE)*	MAX % RPD**	%R (RANGE)*	MAX % RPD**
17 CAM Metals					
Antimony	6010	60-140	25	60-140	25
Arsenic	7061	80-120	20	80-120	20
Barium	6010	80-120	20	80-120	20
Beryllium	6010	80-120	20	80-120	20
Cadmium	6010	80-120	20	80-120	20
Chromium	6010	80-120	20	80-120	20
Cobalt	6010	80-120	20	80-120	20
Copper	6010	80-120	20	80-120	20
Lead	6010	80-120	20	80-120	20
Mercury	7471/7470	80-120	20	80-120	20
Molybdenum	6010	80-120	20	80-120	20
Nickel	6010	80-120	20	80-120	20
Selenium	7741	80-120	20	80-120	20
Silver	6010	75-125	25	75-125	25
Thallium	6010	80-120	20	80-120	20
Vanadium	6010	80-120	20	80-120	20
Zinc	6010	80-120	20	80-120	20

## Volatiles 601/602/624/8010/8020/8260

Dichloroethene	80-120	20	80-120	20
Trichloroethene	80-120	20	80-120	20
Benzene	80-120	20	80-120	20
Toluene	80-120	20	80-120	20
Chlorobenzene	80-120	20	80-120	20

## Semi-Volatiles 625/8270 Base Neutral Acids

Acenaphthene	31-187	19	46-118	31
1,4-Dichlorobenzene	28-104	27	36- 97	28
2,4-Dinitrotoluene	28- 89	47	24- 96	38
N-Nitroso-di-N-Propylamine	41-126	38	41-116	38
Pyrene	35-142	36	26-127	31
1,2,4-Trichlorobenzene	38-107	23	39- 98	28
4-Chloro-3-methylphenol	26-103	39	23- 97	42
2-Chlorophenol	25-102	50	27-123	40
4-Nitrophenol	11-114	50	10- 80	50
Pentachlorophenol	17-109	47	9- 103	50
Phenol	26-90	35	12- 89	42

\* Advisory Control Limits

\*\* % RPD for LCS/LCS Duplicate